Data

Engine			115.923/926/938/939		115.951/954	
Piston		Group no.	Piston dia.	Cylinder dia.	Piston dia.	Cylinder dia.
Standard dimension	Std (Standard)	0	86.98	87.00	93.73	93.75
		1	86.99	87.01	93.74	93.76
		2	87.00	87.02	93.75	93.77
Repair stage	+ 0.5 (+ 0.4) [1)]	0	87.48	87.50	94.13	94.15
		1	87.49	87.51	94.14	94.16
		2	87.50	87.52	94.15	94.17
	+ 1.0 (+ 0.8) [1)]	0	87.98	88.00	94.53	94.55
		1	87.99	88.01	94.54	94.56
		2	88.00	88.02	94.55	94.57
	+ 1.5	0	88.48	88.50		
		1	88.49	88.51		
		2	88.50	88.52		

1) Engine 115.951/954

Piston code number and piston spacing

Engine	Compression ratio ϵ : 1	Piston version	Piston code number	Spacing between piston crown and parting surface of cylinder crankcase Projection	Recess	Depth "A" of shoulder in piston crown (refer to fig.)
Standard compression						
116.923 115.938	9 : 1	Std	91, 41, 78, 86	0.10–0.60	–	–
		+0.5 +1 +1.5	93, 42, 79, 87 94, 43, 80, 88 95, 44, 81, 89	–	0.20–0.70	–
115.951	9 : 1	Std	29, 91	–	0.00–0.50	–
		+0.4 +0.8	30, 92 31, 93	–	0.60–1.10	–
115.954	9 : 1	Std	49, 52, 99, 03	–	0.05–0.55 (0.20–0.70) [1)]	1 mm
		+0.4 +0.8	50, 53, 00, 04 51, 54, 01, 05	–	0.80–1.30 (0.95–1.45) [1)]	1 mm

[1)] Up to April 1977.

Low compression[2]) and (AUS) starting 1976, (J) starting 1976, (S) starting 1976, (USA) starting 1974

115.951 115.954	8 : 1	Std	32, 55, 58, 15, 19	–	0.00–0.50	4.4 mm
		+0.4 +0.8	33, 56, 59, 16, 20 34, 57, 60, 17, 21	–	0.60–1.10	3.8 mm
115.954[4])	8 : 1	Std	67, 75, 07, 11	–	0.20–0.70	5.1 mm
		+0.4 +0.8	68, 76, 08, 12 69, 77, 09, 13	–	0.80–1.30	4.5 mm

2) Low compression engines 115.926/939 have the same pistons as engines 115.923/938.

3) Pistons for engine 115.954 (USA) starting 1977.

4) Installation of pistons with new cylinder head reinforced in combustion chamber (refer to 05–115). Do not install this piston in (AUS), (J), (S) and (USA) models.

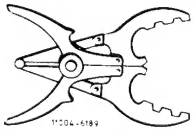
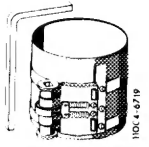
Test values		when new	wear limit
Piston clearance		0.015–0.035	0.08
Difference in weight of pistons in one engine		4 g	10 g
Piston pin dia.		25.995–26.000	
Piston pin clearance	in connecting rod bushing	0.012–0.022	
	in piston	0.002–0.011	
Gap clearance of piston rings	Groove 1	0.30–0.45 (0.35–0.55) [1)]	1.0
	Groove 2	0.30–0.45 (0.30–0.55) [1)]	0.8
	Groove 3	0.25–0.40 (0.25–0.50) [2)]	0.8
Side clearance of piston rings	Groove 1	0.05–0.08 (0.06–0.09)[1])	0.15
	Groove 2	0.03–0.06 (0.04–0.07)[1])	0.1
	Groove 3	0.01–0.04 (0.03–0.06) [1)]	0.1

1) Engines 115.951/954 2) Chamfered oil ring chrome plated

Tightening torque

Connecting rod nuts	Initial torque 40–50 Nm
	Angle of rotation torque 90–100°

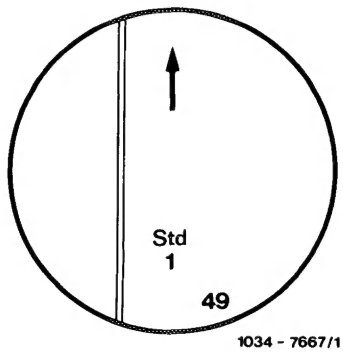
Special tools

Expanding pliers for piston rings		000 589 51 37 00
Clamping strap for piston rings		000 589 04 14 00

Note

The piston version Std, +0,4 or +0,8, the group number 0, 1 or 2, the piston code number e.g. 49 and the driving direction arrow are punched into piston crown.

The group number is also punched into cylinder crankcase parting surface.



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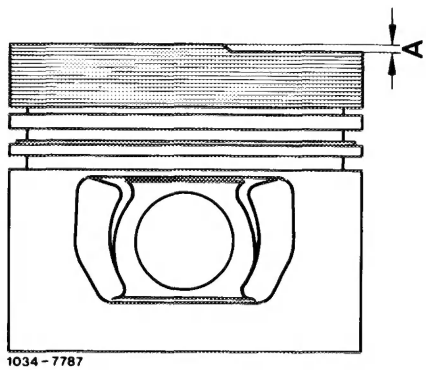
The group number of pistons (e.g. 1) must be in correspondence with group number of cylinder bores.

The specified piston clearance will then be maintained.

In the event of repairs, hone cylinder bores to dimensions of available piston plus piston clearance.

Since the shoulder "A" in piston crown has an influence on compression, the pistons of normal compression and low compression engines 115.951/954 are not interchangeable.



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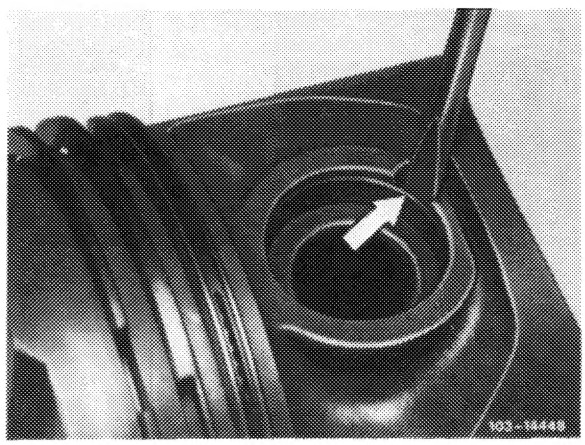
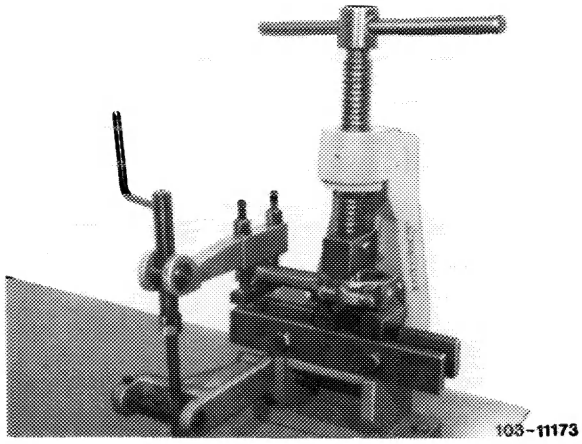
Removal

1 Remove connecting rod with piston in upward direction.

2 Remove piston pin lock and force out piston pin.



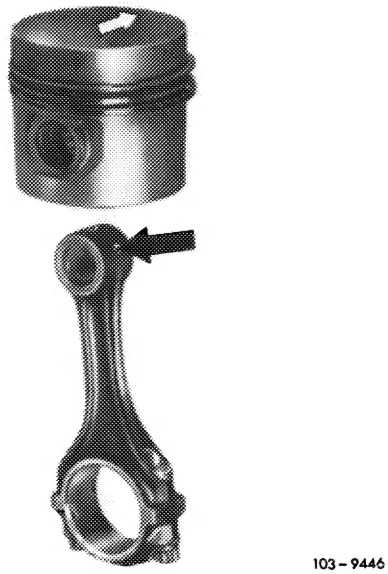
3 Recondition and square connecting rod (03–313).



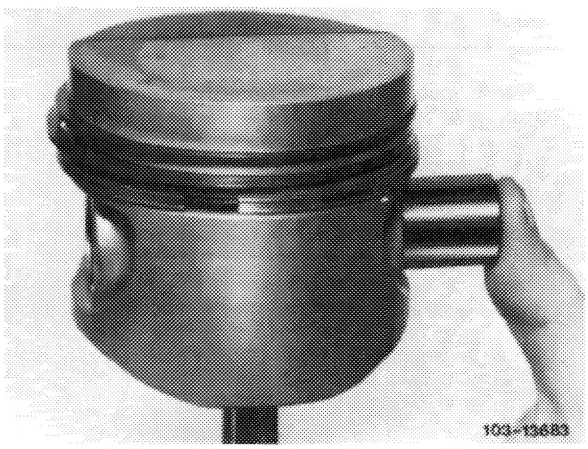
Installation

4 Place piston on connecting rod in such a manner that the arrow in piston crown is pointing in driving direction and the oil groove (arrow) to righthand engine side.

Attention!
Do not heat piston.



5 Push-in piston pin coated with engine oil manually.

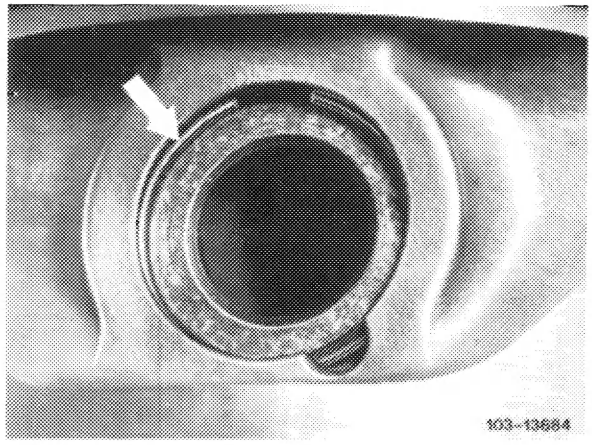


6 Place piston pin lock into groove.

When used pistons are installed, check piston rings for gap clearance and axial clearance.

Check piston rings for easy operation.

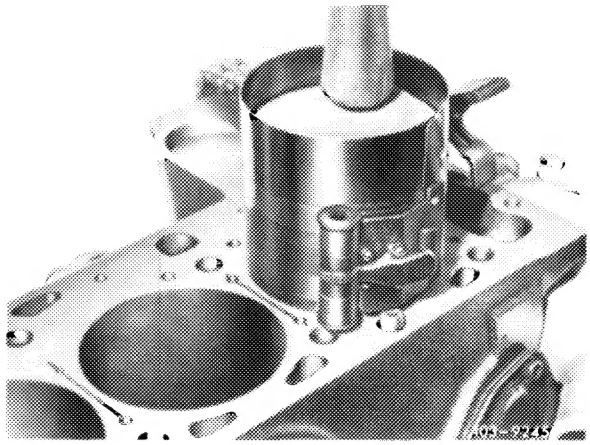
7 Lubricate cleaned cylinder bores, connecting rod bearing journals, connecting rod bearing shells and pistons.



8 Distribute gaps of piston rings uniformly along piston circumference.

9 Position piston ring clamping strap and insert piston.

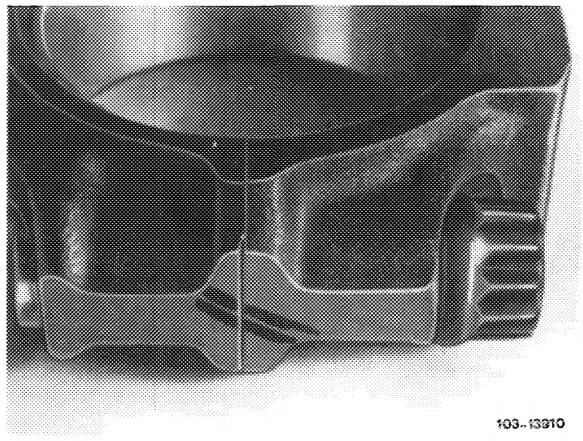
The arrow in piston crown should point in driving direction.



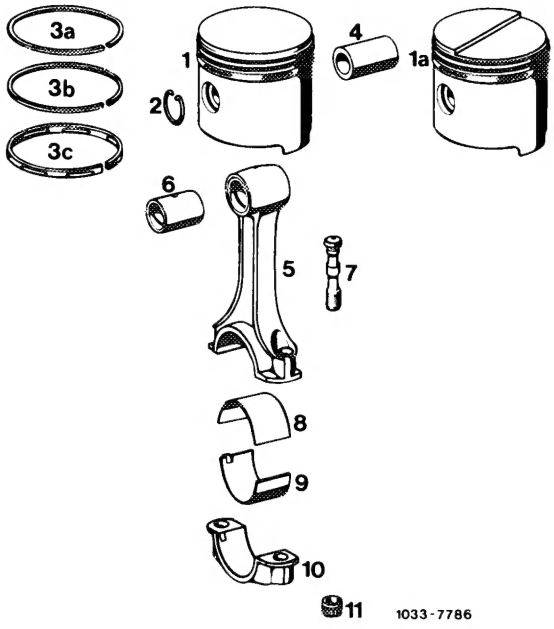
10 Place connecting rod bearing caps with code numbers facing each other on connecting rod and tighten connecting rod nuts to 40—50 Nm initial torque and 90—100° angle of rotation torque.

11 Rotate crankshaft and check clearance between piston pin eye and connecting rod.

12 In TDC position of pistons, measure distance between piston crown and cylinder crankcase parting surface (refer to table).



Piston and connecting rod



1 Piston (engines 115.923/926/938/939/951)
1a Piston (engine 115.954)
2 2 Piston pin locks
3a Rectangular ring
3b Baffle-type tapered compression ring
3c Chamfered O-ring with expanding spring
4 Piston pin
5 Connecting rod
6 Connecting rod bushing
7 2 Connecting rod bolts
8 Connecting rod bearing upper half
9 Connecting rod bearing lower half
10 Connecting rod bearing cap
11 2 Connecting rod nuts